

No. 22-2288

In the
United States Court of Appeals
for the Federal Circuit

APPLE INC.,
Appellant,

v.

COREPHOTONICS, LTD.,
Appellee.

On Appeal from the Patent Trial and Appeal Board
in *Inter Partes* Review No. IPR2020-00489

PATENT OWNER-APPELLEE
COREPHOTONICS, LTD.'S RESPONSIVE BRIEF

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Dated: June 9, 2023

CLAIM LANGUAGE AT ISSUE
U.S. PATENT NO. 10,015,408, CLAIMS 5 AND 6

5. A zoom digital camera comprising:

- a) a first imaging section that includes a fixed focal length first lens with a first field of view (FOV₁) and a first image sensor; and
- b) a second imaging section that includes a fixed focal length second lens with a second FOV (FOV₂) that is narrower than FOV₁, and a second image sensor, wherein the second lens includes five lens elements along an optical axis starting from an object starting with a first lens element with positive power, wherein the five lens elements further include a second lens element with negative power, a fourth lens element with negative power and a fifth lens element, wherein a largest distance between consecutive lens elements along the optical axis is a distance between the fourth lens element and the fifth lens element, and wherein a ratio of a total track length (TTL) to effective focal length (EFL) of the second lens is smaller than 1.

6. The zoom digital camera of claim 5, further comprising a camera controller operatively coupled to the first and second imaging sections, the camera controller configured to provide video output images with a smooth transition when switching between a lower zoom factor (ZF) value and a higher ZF value or vice versa.

FORM 9. Certificate of Interest

Form 9 (p. 1)
March 2023

**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

CERTIFICATE OF INTEREST

Case Number 2022-2288

Short Case Caption Apple Inc. v. Corephotronics, Ltd.

Filing Party/Entity Appellee Corephotronics Ltd.

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Date: 06/09/2023

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Name: Neil A. Rubin

FORM 9. Certificate of Interest

Form 9 (p. 2)
March 2023

1. Represented Entities. Fed. Cir. R. 47.4(a)(1).	2. Real Party in Interest. Fed. Cir. R. 47.4(a)(2).	3. Parent Corporations and Stockholders. Fed. Cir. R. 47.4(a)(3).
Provide the full names of all entities represented by undersigned counsel in this case.	Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities. <input checked="checked" type="checkbox"/> None/Not Applicable	Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities. <input type="checkbox"/> None/Not Applicable
Corephotonics Ltd.		Samsung Electronics Benelux BV

☐ Additional pages attached

FORM 9. Certificate of Interest

Form 9 (p. 3)
March 2023

4. Legal Representatives. List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).

☐ None/Not Applicable

☐ Additional pages attached

C. Jay Chung (formerly of Russ August & Kabat)		

5. Related Cases. Other than the originating case(s) for this case, are there related or prior cases that meet the criteria under Fed. Cir. R. 47.5(a)?

☒ Yes (file separate notice; see below) ☐ No ☐ N/A (amicus/movant)

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☒ None/Not Applicable

☐ Additional pages attached

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STATEMENT OF RELATED CASES

This is the only appeal from the *inter partes* review proceeding at issue, and this is the only appeal that involves U.S. Patent No. 10,015,408.

The Court's decision in this appeal is likely to affect the following district court case where the '408 patent is presently asserted:

- *Corephotonics, Ltd. v. Apple Inc.*, Case No. 3:19-cv-04809-JD (N.D. Cal.)

PRELIMINARY STATEMENT

Apple failed to meet its burden to show that there was a motivation to combine the Golan and Kawamura references as proposed in its petition. The Board properly found that Apple's arguments for motivation to combine were conclusory and unsupported, or contradicted by the evidence before it.

The Board's interpretation of Golan's teachings is supported by the evidence within the patent itself and the undisputed evidence of what those teachings would have indicated to a POSITA. The Board's findings concerning motivation to scale the Kawamura lens are supported by a detailed record, including writings by Apple's own expert that the Board determined impeached his testimony and disproved Apple's theory.

In short, the Board made well-supported factual findings and used those findings to properly address the motivation to combine arguments that were actually presented by Apple. The Board's decision should be affirmed.

STATEMENT OF THE ISSUES

As explained in further detail below, Corephotonics disagrees that Apple's evidence showed that Golan and Kawamura are analogous art,

share a common objective, or would have been easily and readily combined to achieve a predictable result.

STATEMENT OF THE CASE

A. Golan and Kawamura do not share the “common goal” identified by Apple

Apple claims that Golan and Kawamura “shared a goal of moving away from traditional, heavy lenses and, instead, moving toward relatively lighter imaging systems.” Blue Br. 15. But a review of the Kawamura reference shows that it was directed to quite different goals. Kawamura’s purported improvement over “conventional” designs of its time was a reduction in certain optical “aberrations,” effects where the light from a given point on an object is spread out over a region of the film or image sensor, rather than being focused to a point as an ideal lens would do. Appx1299. As Kawamura states, lenses of the type it pertains to “tend[] to overcorrect spherical aberration of color” and to have “comparatively large” chromatic aberration. Appx1299. Kawamura describes its purported improvement as follows:

An object of the present invention is to provide a lens that keeps a compactness of an overall length to a conventional level of a telephoto ratio of about 0.96 to 0.88 but has an excellent image-formation performance due to favorably correcting

spherical aberration of both a reference wavelength and color and also decreasing chromatic aberration in magnification.

Appx1299 (emphasis added). The designer of Kawamura was satisfied with achieving compactness and length that were merely “a conventional level” as of its filing date in 1981. Appx1299. Kawamura’s purported improvement was to achieve reduced spherical aberration and chromatic aberration while *maintaining* a conventional size.

Kawamura never mentions weight or suggests that “relatively lighter” imaging systems would be a goal. Indeed, the weight of a lens “scales as the cube of the relevant linear dimension,” Appx3816, 86:2–8, suggesting that Kawamura’s lenses with “conventional” length would also have a conventional (for 1981) weight.

B. Golan teaches cameras that a POSITA would understand to have a particular size

Apple argues that Golan does not “limit itself to a specific size of camera.” Blue Br. 18. But as Apple’s petition and its expert’s testimony acknowledge, Golan is properly understood to teach cameras having a particular size. For example, Apple’s petition states, as part of its lens scaling theory, that “a POSITA would have scaled the Kawamura lens

prescriptions to fit into a digital camera of Golan.” Appx190. This statement makes no sense unless the “digital camera of Golan” has some sort of size that a lens would need to “fit into.”

During his deposition, prior to Corephotonics submitting its Patent Owner’s Response, Apple’s expert was asked what it would mean to scale Kawamura to “fit into” the “digital camera of Golan”:

Q. So -- so you refer here in Paragraph 64 to scaling the Kawamura lens prescriptions to fit into the digital camera of Golan. How much would ones skilled in the art scale the lens prescriptions of Kawamura in order to achieve that combination?

A. Well, as I said before, depending on the choice of image sensors, a person of skill would scale the lenses of -- the lenses of Kawamura. For example, Golan at some point specifies a 5 megabyte -- 5 megabyte sensor. And the diagonal of such sensor may be -- I don't recall the exact number, but maybe 3 millimeters. I mean, half a diagonal and divided it by the tangent of the center field of view, which, as I said before, is about .2. So that would require focal length of about 15 millimeters, and -- and so the scaling would be a fact[or] of one-tenth.

Appx3388–3389, 47:10–48:1; *see* Appx3389, 48:2–5 (witness clarifying that he meant 5 megapixels, rather than 5 megabytes). In this testimony, when asked how a POSITA would have scaled Kawamura to fit in Golan’s camera, Apple’s expert immediately—and without prompting—recalled

Golan specifying a 5 megapixel sensor, correctly remembered the common sizes of 5 megapixel sensors, *cf.* Appx3500 (showing 5 megapixel sensors having either a 4.5 mm or 6 mm diagonal size), and mentally calculated the approximate amount Kawamura would need to be scaled to fit this sensor. *See* Appx3257, ¶ 77 (calculating that the actual scaling required for a lens intended for 6×7 film to work with a 4.5 mm or 6 mm diagonal sensor is a factor of 14x to 20x); Appx2202, ¶ 48 (scaling Kawamura by a factor of 14.5x to work with a 6 mm diagonal sensor).

A POSITA reading Golan would—like Apple’s expert—have understood that it taught systems using sensors of roughly a certain size. That POSITA would likewise have understood that such sensors require lenses of a corresponding size, or more precisely having a corresponding focal length. In the testimony quoted above, Apple’s expert used a formula that defines a relationship between the size of the image sensor and the lens focal length:

$$A = 2\theta = 2 \tan^{-1} \left(\frac{K}{2f} \right)$$

Appx1141; Appx2287. In this formula, A is the angular field of view of the camera, K is the diagonal dimension of the image sensor (or film), and

f is the focal length of the lens. Appx1141; Appx2287. To achieve any particular field of view of the camera, the diagonal dimension of the sensor K and the focal length of the lens f must be in the correct ratio. So, the POSITA would have understood from Golan's teachings concerning sensor resolution what corresponding focal length of lens would be required.

A POSITA would likewise have understood these sensor and lens sizes in Golan to be significant. Golan criticizes "heavy" lenses and touts its invention as providing a benefit of "light weight." Appx1206, ¶¶ [0007], [0008]. Sensor size and lens focal length directly affect the weight of the lens. *See* Appx2194–2195 (showing how weight scales with sensor size and showing that a lens for a 43.27 mm sensor has almost *400 times* the weight of a lens for 6 mm sensor); Appx3816, 86:2–8 (lens weight "scales as the cube of the relevant linear dimension"). Accordingly, a POSITA would have understood that Golan's example specifying small sensors—and thus, to a POSITA, small lenses—was an important aspect of Golan's teachings.

C. Kawamura teaches lenses that are substantially larger and heavier than those suggested by Golan

Apple's obviousness theory relies on the embodiments of Kawamura that have a focal length of 200 mm. Appx185–186 (showing " $F =$

200.079”). According to Kawamura, these 200 mm lenses are intended for use with Pentax “6×7” format film. Appx1299; Appx3244–3245, ¶¶ 56–57. The 6×7 format used a frame size of 56 mm × 67 mm, on film more than twice as wide as that of the once-ubiquitous “35 mm” format. Appx3245, ¶ 57. This 56 mm × 67 mm film frame had an area hundreds of times larger than the 4.5 mm or 6 mm diagonal frame of typical 5 megapixel sensors.

Each of the examples in Kawamura has a total track length (TTL)—the distance between the front of the lens and the location of the film in the camera—of greater than 7 inches. Appx3251, ¶ 65. As a result of their large film, 6×7 format cameras were large and heavy. For example, a 6×7 camera body (without lens) made by Kawamura assignee Asahi was over 7 inches wide, weighed almost 3 pounds, and was available with a large hand grip to assist the user in holding and controlling the heavy camera:



Appx3247, ¶ 60. An Asahi lens having the same 200 mm focal length and 1:4 brightness as the embodiments of Kawamura, Appx1299, weighed 8.88 oz. (252 grams):



Appx3248–3250, ¶¶ 62–63. Indeed, Apple’s expert calculated that the glass portions of the Kawamura lens alone had a minimum weight of 183.3 grams, Appx2195–2196, ¶ 32, and agreed that 252 grams would be a “reasonable estimate” of a complete lens based upon Kawamura, including its barrel, Appx3779, 49:3–10. For comparison, Apple’s expert calculated the weight of a proposed lens for a 6 mm diagonal sensor (like the 5 megapixel sensor of Golan) to be a mere 0.56 grams, lighter than the Asahi lens by a factor of 450x. Appx2194–2195.

Note that nothing in the film-oriented Kawamura suggests electronic zoom—or zoom of any kind at all. If the user wanted a focal length other than 200 mm and thus a different magnification factor, they would have needed to remove the 200 mm lens from the camera body and attach a different lens.

D. Apple’s petition presented two theories for combining Golan and Kawamura which raise distinct issues

The Board properly recognized that Apple presented two alternative theories for how Golan and Kawamura could be combined. Appx19–21; Appx189–190. In the first theory, the lens design of Kawamura could be used without changing its focal length or other dimensions. Appx19–20. In the second theory, all dimensions of Kawamura’s lens prescription

would be scaled to a different size, “to fit into a digital camera of Golan.” Appx20–21, Appx190 (“a POSITA would have scaled the Kawamura lens prescriptions to fit into a digital camera of Golan while maintaining the compactness and an excellent image-formation performance”).

The parties addressed these two alternative theories separately in their briefing and presented different arguments and evidence for each. Appx346–347, Appx391, Appx398. Likewise, the Board’s analyzed these two alternative theories separately. Appx25–37. In evaluating the Board’s findings, it is important to recognize it is separately analyzing Apple’s two theories and that the Board’s statements quoted by Apple often occur in the context of one specific alternative theory, though they may also sometimes apply for both.

Likewise, it is important to understand which of these two theories Apple is advancing when it makes a particular argument in this appeal. Sections I.A and I.B of the argument in Apple’s opening brief seem to be directed to the first alternative theory (Kawamura without scaling) and Section I.C seems to be directed to the second alternative theory (scaling Kawamura). But at least to counsel for Corephotonics, Sections II and III seem not to always clearly identify the theory of combination they are

addressing, the first alternative theory, the second alternative theory, or some other combination that was not advanced below.

E. Apple mischaracterizes the sur-reply and oral hearing

Corephotonics did not “admit” in its sur-reply that a POSITA would consider Golan to be teaching a system of *any* size or weight. Rather, Corephotonics acknowledged that a POSITA would not see Golan’s system as requiring exactly one specific image sensor resolution and size, to the exclusion of all other options, and Corephotonics explained that its arguments did not require limiting Golan in that manner. Appx424. For example, an even smaller sensor could be used, or perhaps a larger sensor that is still consistent with achieving Golan’s “light weight” zoom. Appx421. The sur-reply was clear that Golan’s teachings did not encompass systems with lenses as large or heavy as Kawamura. Appx424–425.

Corephotonics also did not “admit” that Golan could be used in “any system.” Apple’s arguments to that effect rely on selectively quoting from one sentence said by Corephotonics’ counsel, ignoring both the rest of that very sentence and the arguments that immediately preceded and followed that sentence. Appx631–632. Corephotonics addresses this issue in detail in Argument Section I.A below.

SUMMARY OF THE ARGUMENT

The Board's determination that Apple failed to show a motivation to combine Golan and Kawamura as it proposed in its IPR petition was based upon factual findings that were well-supported by the evidence and that properly addressed the arguments made by Apple. Accordingly, that determination should be affirmed and Apple's appeal denied.

This evidence included the testimony of Apple's own expert, confirmed by Corephotonics' expert and other evidence, showing that a POSITA would understand the example of a 5-megapixel image sensor to suggest a particular size of sensor and corresponding size of lens. The Board properly interpreted Golan's teachings concerning a "light weight electronic zoom" based upon this example *within Golan*, as it would have been understood by a POSITA, and declined Apple's suggestion to instead interpret Golan's teachings based upon a cherrypicked example product extrinsic to Golan.

This evidence also included papers written or cited by Apple's expert that contradicted the theory Apple advanced in its petition concerning motivation to scale Kawamura's lens to fit into Golan's camera. The

Board properly concluded from this evidence that a POSITA would not have been motivated to scale Kawamura as proposed by Apple.

The Board properly considered the substantial difference in size between the system taught by Golan and the lens taught by Kawamura. This difference was highly relevant both to whether Kawamura's unscaled lens would have been suitable for Golan's "light weight electronic zoom" and to whether a POSITA would have scaled Kawamura's lens as Apple proposed.

The Board analyzed Apple's motivation to combine arguments at great length. Based upon findings supported by substantial evidence, it either found that Apple's arguments were contrary to the evidence or that they were not adequately supported. Moreover, many of the motivation to combine arguments addressed in Apple's opening brief were either conclusory or facially inconsistent with the statements of Golan and Kawamura. There is no need to remand for further consideration of Apple's arguments.

Finally, Apple's arguments concerning Corephotonics' statements at the oral hearing and in a Korean proceeding seek to relieve Apple from the burden of actually proving relevant facts by selectively excerpting a

sentence—or a few words from a sentence—to substantially distort what Corephotonics actually said. They are not accurate characterizations of the record and should be rejected.

ARGUMENT

I. The Board’s findings concerning the scope of Golan’s “light weight electronic zoom” teaching are supported by substantial evidence

A. Apple’s claim that Corephotonics agreed Golan could be applied to camera systems of any size grossly distorts the oral hearing record

Henry Ford famously said of the Model T: “*Any customer can have a car painted any color that he wants* so long as it’s black.”¹ (emphasis added). By quoting just the italicized portion of this quote, one can give the impression that Ford sold the car in red, yellow, and purple. But to leave out the critical condition at the end of Ford’s statement yields a quote that is nearly the opposite of what Ford meant.

So it is with Apple’s selective quoting from the PTAB hearing transcript. Apple’s opening brief repeatedly quotes the statement from Corephotonics’ counsel that “Golan could be used in any system, miniature or otherwise, where the optical zoom is not available” as an unequivocal

¹ <https://corporate.ford.com/articles/history/the-model-t.html>

acknowledgement that Golan’s teachings are directed to cameras of arbitrarily large size. Appx632, 22:8–9. But to interpret this quote in this way is to leave out the critical condition at the end concerning “optical zoom” and to ignore the argument concerning optical zoom Corephotonics counsel made both immediately prior to and immediately following the statement Apple quotes.

The statement that Golan could be used in any system “where the optical zoom is not available” was not an acknowledgment that Golan’s teachings are directed to cameras independent of their size. Rather, the entire point being argued by Corephotonics in this answer to the Board’s question was that one skilled in the art would only look to apply Golan’s teachings in a system with small cameras, because it is only in the smallest cameras that the traditional approach of optical zoom is not available. Appx632, 22:17–26.

Immediately before the statement that Apple quotes, counsel for Corephotonics said the following:

So, not only does the example tell one of skill in the art that Golan is applicable to miniature camera systems, but that makes sense with the whole purpose of Golan. If it’s not a miniature system, and you have room for a big lens, you would just use an optical lens. *You only use it where you can’t have*

an optical zoom lens and that's only in miniature camera systems.

Appx631, 21:20–26 (emphasis added). Taking this statement together with the subsequent statement Apple quotes, we see that Corephotonics' position at the PTAB hearing was that: (1) Golan's teachings would only be used in systems where optical zoom is not available, Appx632, 22:8–9, and (2) the only systems where optical zoom is not available are miniature camera systems, Appx631, 21:24–25. In other words, Corephotonics' position was still that Golan's teachings were in fact limited to miniature camera systems, even if counsel's phrase “any system, miniature or otherwise” taken out of context might suggest otherwise.

Far from an admission that Golan's teachings applied to large-scale cameras, the statement that Apple quotes was a suggestion to the Board of an alternative path they could take to reach the conclusion that Golan's teachings were directed to smaller cameras. Much of the parties' briefing and earlier hearing argument had focused on the significance of the 5 Megapixel sensor used as an example in Golan. Appx1206, ¶ [0004]. The evidence indicated that one skilled in the art would understand this to be a sensor of roughly 4.5 mm to 6.0 mm in diagonal dimension and to consider the camera system using it a “miniature” camera system.

Appx3500; Appx3388–3389, 47:10–48:22. But the parties disputed whether Golan’s teachings were limited to miniature cameras, whether Kawamura’s teachings were applicable to miniature cameras, and even what sizes of cameras were included in the “miniature” category. *E.g.*, Appx391, Appx395, Appx406–407. Corephotonics was suggesting that if the Board rejected Corephotonics’ arguments based upon the 5 Megapixel sensor and “miniature” cameras, it could instead look to “the whole purpose of Golan,” which Corephotonics characterized in this exchange at the hearing as limited to systems where there was no room for an optical zoom lens. Appx631, 21:20–25.

As a proper review of the hearing transcript shows, the issues had not “crystalized” so as to render the issue of miniature lenses irrelevant at the oral hearing or in the Board’s final written decision, as Apple suggests. Blue Br. 38–39. Rather, arguments that Golan is directed to miniature camera systems are advanced throughout the slides that Corephotonics presented at the oral hearing. Appx511, Appx515–516, Appx535–536, Appx558–559. The Board properly understood what disputes were live between the parties following the hearing and properly addressed those arguments in its Final Written Decision.

Even if Corephotonics had conceded at the hearing that the teachings of Golan addressed cameras of any size—which it did not—that would not be a basis to reverse the Board. The question on appeal is whether the Board’s factual findings concerning what is taught by Golan are supported by substantial evidence, not whether they match how the prevailing party characterized those teachings at the oral hearing. *SIPCO, LLC v. Emerson Electric Co.*, 980 F.3d 865, 870 (Fed. Cir. 2020) (“We review the Board's findings regarding the scope and content of the prior art for substantial evidence.”) As discussed further below, the Board’s findings were supported by substantial evidence.

B. The Board’s findings regarding combining Golan with Kawamura were based upon what Golan taught or failed to teach, not on whether it “taught away”

Apple’s arguments concerning teaching away fail to address the Board’s actual findings and reasoning, preferring instead to attack arguments made by Corephotonics that the Board never adopted. Apple’s opening brief fails to even mention the Board’s clarification of its determination concerning combining Golan with Kawamura, set forth in the decision on rehearing:

We clarify that we determine, instead, that a POSITA would not have understood Golan to teach or suggest image sensor

arrays or imaging devices of a size compatible with that of the telephoto lens assemblies taught or suggested by Kawamura.

Appx57. In other words, the Board's reasoning did not exclude the possibility that Golan taught or suggested use of a sensor larger than its 5-megapixel sensor example or larger than the class of miniature camera sensors it belongs to. The Board's reasoning likewise did not exclude the possibility that Kawamura taught or suggested lenses smaller than the 200 mm focal length lenses for 56 mm \times 67 mm film that are its preferred embodiments. Appx185–186; Appx3245, ¶ 57. But the gap in size between the 5-megapixel digital sensor of Golan's example and the photographic film Kawamura's lenses were designed for was a factor of 14x to 20x in linear dimension. Appx3257, ¶ 77. The Board found that however broad the ranges of sensor and lens sizes taught or suggested by these references, those ranges were not broad enough to collectively span that factor.

Nothing in this clarified determination suggests that the Board assumed that Golan applied only to miniature devices. Indeed, nothing in the Final Written Decision suggests that the Board made this assumption either. In particular, the statement that Apple quotes from the Final Written Decision concerning “the proposition that Golan's teachings are

applicable to imaging systems that are of a scale larger than that of the miniature cameras and image sensors used in mobile devices” does not suggest that the Board assumed Golan was limited to miniature devices or that it required Apple to prove otherwise.

This is because the “proposition” in question was not one that the Board itself put at issue. Rather, it is a proposition that Apple expressly advanced in its reply brief. Appx392 (arguing “[a] POSITA would have understood that Golan’s teachings are not limited to miniature cameras used in mobile devices such as cellphones”). In the paragraph that Apple quotes concerning this “proposition,” the Board is expressly evaluating “Petitioner’s *first* argument,” Appx25, which the Board had identified as the argument of Apple’s reply concerning the “miniature cameras” issue, Appx23. The Final Written Decision indeed devotes several pages to explaining why the evidence that Apple cited in its reply failed to sufficiently support Apple’s proposition. Appx26–33. But the fact that the Board addressed and rejected Apple’s arguments in the “miniature cameras” and “mobile devices” terms that Apple itself framed those arguments does not mean that the Board itself adopted reasoning that depends on limiting Golan using those concepts.

Likewise, the Board’s finding did not rely on Golan teaching away from larger-scale imaging systems or force Apple to prove the contrary. It was Apple’s burden to establish obviousness. *Harmonic Inc. v. Avid Technology, Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (“the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable”). In particular, it was Apple’s burden of persuasion to establish that it was obvious to combine the Golan and Kawamura references to yield an embodiment that satisfies the elements of the challenged claims. *See In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016) (“As part of the obviousness inquiry, we consider whether a [PHOSITA] would have been motivated to combine the prior art *to achieve the claimed invention* and whether there would have been a reasonable expectation of success in doing so.” (internal quotation marks omitted) (emphasis added)); *Adapt Pharma Operations Limited v. Teva Pharmaceuticals USA, Inc.*, 25 F.4th 1354, 1365 (Fed. Cir. 2022) (an obviousness determination “requires identifying a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements *in the way the claimed new invention does*” (internal quotation marks omitted) (emphasis added)); *Polaris Industries, Inc. v. Arctic*

Cat, Inc., 882 F.3d 1056, 1068 (Fed. Cir. 2018) (remanding because “the Board focused on what a skilled artisan would have been *able* to do, rather than what a skilled artisan would have been *motivated* to do at the time of the invention”).

Accordingly, the Board properly focused on whether the motivation to combine offered by Apple was actually supported by the evidence. Apple’s argument for motivation to combine was that Golan’s teachings concerning “light weight” electronic zoom provided a motivation to use a “compact telephoto lens design.” Appx188. Apple then argued that Kawamura provided such a “compact” design. Appx188. While Apple also referred to benefits of Kawamura’s design, it does not point to anything in Kawamura that would motivate incorporating features from Golan. Appx188.

Given that Apple’s proffered motivation to combine rests on the premise that Golan’s teachings of “light weight” electronic zoom motivate combination with Kawamura, the Board properly analyzed what Golan means by “light weight.” The Board properly looked to the evidence within Golan that actually indicates to a POSITA what sizes or weights Golan contemplated. It is undisputed that the disclosure of 5 megapixel

image sensors would convey an understanding of image sensor size and lens focal length, as Apple’s expert himself testified. Appx3388, 47:10–48:1. Moreover, Apple has not identified any disclosure of Golan that suggests larger sensors or lenses. It is also undisputed that lens size and weight are closely related. Appx3816, 86:2–8 (lens weight “scales as the cube of the relevant linear dimension”).

Given what Golan disclosed bearing on the size and weight of its system, the Board properly found that “light weight” should be understood relative to those disclosures. Appx34. On that basis, it found that a system using Kawamura’s lens assembly—far larger and heavier than a lens assembly suggested by the 5 megapixel sensor example—would not be considered “light weight” as Golan used the term. Appx34–35.

Having found that a system using Kawamura’s lens design was not “light weight” as Golan used the term, the Board naturally concluded that Golan’s teachings concerning “light weight” would not have motivated such a combination with Kawamura and that Apple’s stated motivation to combine failed. Appx25–26. The Board did not require Apple to prove that Golan failed to teach away, as Apple suggests. Blue Br. 42–44.

Rather, the Board required Apple to establish that Golan's teachings motivated a combination with Kawamura, as Apple's own theory of motivation to combine required. Apple failed to so establish. Appx25.

Although the Board had no need to determine whether Golan teaches away from combination with Kawamura, Golan's teaching away would provide an alternative grounds for affirming the Board's decision. As Apple acknowledges, Corephotonics presented such a teaching away theory before the Board. Appx261, Appx421. Golan clearly expresses a desire to avoid "heavy and expensive lenses" and to instead use the "light weight electronic zoom" of its invention. Appx1206, ¶¶ [0007], [0008]. This discussion in Golan does more than merely express a preference for light weight. Rather it states that "heavy" lenses are a disadvantage of existing zoom designs and that avoiding such "heavy" lenses is one of the reasons for Golan's electronic zoom system to exist. Appx1206, ¶¶ [0007], [0008]. In doing so, Golan expressly criticizes heavy lenses and discourages investigation into their use and thereby teaches away from the use of heavy lenses in its system.

The Board correctly determined that the terms "heavy" and "light weight" in Golan would be understood relative to Golan's disclosure of a

system with a 5 megapixel sensor. Appx34. By this standard, the unscaled Kawamura lens, with a weight hundreds of times greater than that expected for a lens compatible with the 5 megapixel sensor, is clearly among the “heavy” lenses that Golan criticizes and discourages. Appx2194–2196, Appx3779, 49:3–10. Accordingly, Golan teaches away from using Kawamura’s lens without scaling. *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009) (“A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference . . .”)

C. The Board’s findings concerning Apple’s scaling theory properly focused on the theory presented by Apple in its petition and are well supported by evidence including the writings of Apple’s own expert

1. The Board properly rejected Apple’s scaling combination

To the extent that the Board’s analysis of Apple’s second alternative theory addresses scaling Kawamura to work with the 5 megapixel sensor in Golan or similar miniature camera sensors, that is a direct result of how Apple itself framed its scaling theory. It was Apple whose petition

stated that “a POSITA would have scaled the Kawamura lens prescriptions to fit into a digital camera of Golan.” Appx190. It was Apple’s expert who testified that the 5 megapixel sensor provided at least an example of what it would mean to scale Kawamura “to fit into a digital camera of Golan.” Appx3388-3389, 47:10–48:5.

If scaling Kawamura “to fit into a digital camera of Golan” does not mean scaling it to work with the single component having a relevant characteristic size disclosed in Golan, what does it mean? Apple does not say. In particular, Apple’s IPR reply does not suggest some combination of Golan and Kawamura where Kawamura’s lens prescription is scaled to work with something other than a 5 megapixel sensor. Rather, Apple’s expert offered new analysis concerning scaling Kawamura to work with a 1/3" sensor, i.e. the 6 mm diagonal 5 megapixel sensor he had testified about in his earlier deposition. Appx2196, ¶ 33; Appx2201, ¶ 43; Appx3500; Appx3388–3389, 47:10–48:22.

The Board’s analysis addressed scaling Kawamura to “fit into” the examples in Golan because that is the second alternative theory that Apple offered. The Board’s conclusions that a POSITA would not have been

motivated to scale Kawamura in this manner are supported by substantial evidence. *Par Pharmaceutical, Inc. v. TWi Pharmaceuticals, Inc.*, 773 F.3d 1186, 1196 (Fed. Cir. 2014) (“The presence or absence of a motivation to combine references in an obviousness determination is a pure question of fact.”) This includes the testimony of Corephotonics’ expert Dr. Moore to that effect. Appx3257–3258, ¶¶ 76–77. Apple criticizes these two paragraphs as “conclusory,” but these paragraphs are merely the first two paragraphs of Dr. Moore’s section on scaling Kawamura. His conclusions regarding a lack of motivation to scale Kawamura as proposed are supported by a full 34 further paragraphs of evidence and expert analysis. Appx3258–3274, ¶¶ 78–111.

This evidence cited by Dr. Moore includes three documents written or cited by Dr. Sasián, or written by his Ph.D. student, that the Board concluded impeached Dr. Sasián’s opinions that a POSITA would have scaled Kawamura to fit into Golan. Appx22–23, Appx36–37 (citing Appx3507, Appx3618, Appx3622, Appx3529, Appx3531). For example, an article co-authored by Apple’s expert addressing the design of miniature lenses states that “[a] traditional objective lens *can not be simply scaled*

down as a lens solution due to fabrication constraints, materials properties, manufacturing process, light diffraction and geometrical aberrations.” Appx3507 (emphasis added), Appx22. Likewise, the Ph.D. dissertation of a student of Apple’s expert described “many issues” and a “huge problem” that would be encountered when scaling a camera lens design down by a factor of 7, Appx3618, Appx3622, Appx22, less than the factor of 14 involved in scaling Kawamura’s lens to work with a 6 mm image sensor, Appx3257. Similarly, a paper cited by Apple’s expert in his textbook explains that scaling down a larger-scale lens to a smaller size “will result in a system that is unmanufacturable” and cites numerous issues that would result from simply scaling a 35 mm lens design down by a factor of 10. Appx3529, 3531. As the Board clarified in its denial of rehearing, the Board found that at least two of these references affirmatively supported Corephotonics’ position, rather than just impeaching Apple’s expert. Appx65 (citing Appx3507, Appx3529, Appx3531).

Apple’s brief offers a fallback position: if obviousness based upon scaling Kawamura to fit into Golan fails, Apple’s theory was never about scaling to fit into Golan anyway, but rather was about a “line of creativity” that Apple apparently contends would have resulted in some other

combination of Kawamura with Golan, based on “general scaling principles.” Blue Br. 47. Apple does not cite to anywhere in the record where it made such an argument to the PTAB. Moreover, it is not sufficient to prove obviousness to simply show that each claimed element is present in one or the other of the references and then to simply appeal to the POSITA’s “creativity.” *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (“a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art”). Rather, the party challenging the patent must show that a POSITA would have been motivated to combine the prior art in a way that satisfies the challenged claims. *Id.* (“Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” (quoting *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006))). It was Apple’s burden to show this “with particularity.” *Harmonic*, 815 F.3d at 1363.

2. Apple’s arguments concerning the “rich literature” of lens designs and the LG Brief are a sideshow and in any event mischaracterize the evidence

Apple’s arguments concerning Dr. Moore’s testimony regarding a “rich literature” of miniature lens designs similarly fail. The Board made clear in its decision on rehearing that its conclusions regarding obviousness did not depend in any way on whether there was a “rich literature” of miniature lens designs. Appx53. The Board stated that even if that portion of Dr. Moore’s testimony had been stricken from the record or deemed discredited, the Board’s conclusion that Apple had failed to carry its burden proving unpatentability would remain the same. Appx53. Even in its original Final Written Decision, the Board made clear that it was not requiring Apple to show that combining with Kawamura was a better option than others known in the art and that its decision did not depend on there being a “sea” of miniature telephoto lens designs in the art. Appx38.

The other evidence cited by the Board in its Final Written Decision in concluding that a POSITA would not have been motivated to scale Kawamura for use in Golan easily provides substantial evidence to support the Board’s findings. Appx36. This evidence includes expert testimony

that Kawamura’s lens would need to be scaled down by a factor of at least 14x to work with Golan’s 5 megapixel sensor, Appx36, and the three documents written or cited by Dr. Sasián, or written by his Ph.D. student that the Board found impeached Dr. Sasián’s opinion that a POSITA would have been motivated to scale Kawamura’s lens in this way and affirmatively supported Corephotonics’ position that a POSITA would not have been motivated to perform such a scaling. Appx36–37, Appx65.

The Board’s decision on rehearing set forth still further reasons—in its discussion of Sections II.B and II.C of the rehearing request—that Apple’s challenge was deficient, whether or not Dr. Moore’s “rich literature” testimony is correct. Appx53. This discussion further explains how the three documents undercut Apple’s scaling theory and how Dr. Moore’s opinions concerning that scaling theory are supported by evidence. Appx64–65.

Even if Dr. Moore’s “rich literature” testimony were material to the outcome of this case, the statements made by Corephotonics in the Korean case do not contradict Dr. Moore’s testimony. The statements in the Korean case concerned telephoto lenses for a “portable terminal,” not “miniature lenses.” Appx682. The claims in the Korean case had been

amended to require that the Total Track Length (TTL) be less than 6.5 mm. Appx681–683. The Korean brief’s discussion of “portable terminals” makes clear that it is referring to devices that would require a lens TTL less than 6.5 mm. Appx684–685. It can easily be true that there were numerous miniature telephoto lens designs known but very few that had a TTL less than 6.5 mm. For example, scaling Kawamura by a factor of 14.5 to work with Golan’s 1/3" sensor in a miniature camera yields a TTL of 13.49 mm. Appx2202, ¶ 48; Appx2210 (using the term “Total Axial Length” to refer to the TTL). The statements in the Korean brief also reflect Korean substantive law that differs from U.S. patent law, concerning the prior art status of unpublished patent applications for the purposes of obviousness or “inventive step.” Appx743.

Moreover, in asking the Board to accept the proposition that there were “hardly any” or “only one” prior art miniature or mobile phone telephoto lens designs, Apple is advancing a position contrary to that it has taken in multiple other proceedings before the PTAB, and which its expert confirmed in his testimony in this case. In its petitions challenging Corephotonics patents, Apple has made repeated statements to the effect that “mobile devices with an integrated camera having Telephoto and

Wide lenses were well known,” and it has cited at least five unrelated references that allegedly demonstrate that. Appx790. At deposition in this IPR, Dr. Sasián agreed that prior to June 2013—the earliest priority date for the ’408 patent—“telephoto lens designs for mobile phones were well-known” and that there were “at least several” such well-known designs. Appx3843–3844, 113:22–114:4. 114:14–18. He also confirmed that four specific prior art references he had cited in an earlier declaration taught telephoto lens designs suitable for use in mobile phones. Appx3842–3843, 112:7–113:9. *See also, Apple Inc. v. Corephotonics, Ltd.*, Case No. 20-1438, Dkt. 17 at 8, (Apple brief referring to “the crowded field of optical lens assemblies of the type often used in cameras, cell phones, and other portable devices” and explaining that the Konno reference describes a telephoto lens for use in mobile phones).

The Board correctly deemed the “rich literature” issue immaterial to the outcome and the Korean brief issue moot. But even if the Board’s decision had hinged on the “rich literature” question, the Korean brief does not actually contradict Dr. Moore’s testimony, and Apple’s interpretation of the Korean brief *does* contradict Apple’s own expert’s testimony and Apple’s own consistent statements to the Board. The Board was not

obligated to admit this new evidence after it had issued its Final Written Decision, let alone obligated to reverse its decision on obviousness based upon that new evidence.

II. The Board properly considered the difference in size between Golan and Kawamura as highly relevant to how a POSITA would have viewed either theory of combination proposed by Apple

The difference in size between the system suggested by Golan’s 5 megapixel sensor and Kawamura’s lens is both large and highly relevant to Apple’s theories of combination. The fact that Kawamura’s lens is hundreds of times heavier than what is suggested by Golan’s example is highly relevant to incorporating it into Golan’s “light weight electronic zoom.” Appx2194–2196, Appx3779, 49:3–10. Likewise, the difficulties posed by scaling a lens such as Kawamura by the large factor required to fit into Golan’s camera are highly relevant to whether a POSITA would have been motivated to make such a scaling. Appx348–353; Appx3258–3263, ¶¶ 78–87; Appx3507; Appx3618; Appx3622; Appx3529; Appx3531.

A. The Board did not assume a need to physically incorporate Kawamura’s lens into Golan

Apple argues that it “was not required to demonstrate that a POSITA would have scaled Kawamura’s lens to fit into Golan.” Blue Br.

52. But it was *Apple* that chose to present as its second theory that “a POSITA would have scaled the Kawamura lens prescriptions to fit into a digital camera of Golan.” Appx190. In other words, what Apple claims it was not required to demonstrate was nearly word-for-word the theory of obviousness in Apple’s own petition.

Moreover, scaling Kawamura’s detailed lens prescriptions to fit into Golan was the only specific theory of modifying Kawamura that Apple presented in its petition. The petition devotes a single paragraph to the question of modifying Kawamura. Appx189–190. Much of that paragraph simply argues that any needed modifications to Kawamura would have been within the level of skill in the art, without even hinting as to what those needed modifications may be. Appx189–190. Only scaling to fit into the digital camera of Golan is specifically identified. Appx189–190.

As noted above, even in its reply Apple did not present any specific theory of scaling other than scaling Kawamura to fit into Golan. For example, Apple’s expert presented two new analyses of scaling Kawamura Example 1, but both involved scaling to work with a 1/3" sensor, i.e. the

6 mm diagonal size suggested by Golan’s reference to a 5 megapixel sensor. Appx2196, ¶ 33; Appx2201, ¶ 43; Appx3500; Appx3388–3389, 47:10–48:22.

Apple may be right it “was not required to demonstrate” a POSITA would have done such a scaling, in the sense that it was free to present a theory of obviousness, in its petition, that did not involve such a scaling to fit into Golan. But Apple had “the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic*, 815 F.3d at 1363. Since the Board determined that the evidence failed to support the theory of obviousness presented by Apple, the Board properly rejected that theory and rejected Apple’s challenge to the claims.

To compare the sizes of the devices taught by Golan and by Kawamura was not to assume that obviousness must be shown by bodily incorporation. Neither the Board nor Corephotonics objected to combining Golan and Kawamura simply because one of them might need to be changed, for example because the lens prescriptions taught by Kawamura—and relied upon by Apple to show the combination satisfied the challenged claims—would need to be scaled to fit Golan.

Rather, the difference in sizes was directly relevant to whether a POSITA would have been motivated to make the required changes at all. As described above, Corephotonics presented extensive evidence and arguments for why a POSITA would not scale a lens design by a large factor such as that proposed in Apple's second theory. Appx348–353; Appx3258–3263, ¶¶ 78–87; Appx3507; Appx3618; Appx3622; Appx3529; Appx3531. Accordingly, it was entirely proper for the Board to consider the sizes of Golan and Kawamura as they are relevant both to the question under Apple's first theory of whether Kawamura's lens would be considered "light weight" and to the question under Apple's second theory of whether a POSITA would be motivated to scale Kawamura's lens as Apple proposed.

B. The Board's interpretation of "light weight" in Golan is well-supported by the evidence

Apple objects to the Board's interpretations of "heavy," "expensive," and "light weight." Blue Br. 53. While the parties did discuss the meaning of "heavy" and "expensive" in their briefing, Corephotonics does not understand any of the Board's conclusions to turn on the meanings of "heavy" or "expensive" in the '408 patent, per se. Rather, the Board's findings on motivation to combine rely on the term "light weight." Appx25–

26, Appx35, Appx37, Appx59. In particular, Apple’s argument in its opening brief is that the Board should have found that the Kawamura lens would have been considered “light weight.” Blue Br. 53, 56, 58. Apple’s brief does not identify any conclusions that the Board reached that would have changed with a different interpretation of “heavy” or “expensive.”

But regardless of which of these terms actually matters to the Board’s decision, the Board’s interpretations of all three terms are supported by substantial evidence, namely the example in the patent of a 5 megapixel image sensor and the undisputed evidence of what size a POSITA would understand that sensor to have. Appx1206, ¶ [0004]; Appx3388–3389, 47:10–48:22. In particular, that example of an image sensor is important evidence of what sensor sizes might be in the “light weight electronic zoom” embodiments that Golan teaches. Furthermore, the expert testimony shows there is a close relationship between sensor size and lens weight. Appx2194–2195; Appx3816, 86:2–8 (lens weight “scales as the cube of the relevant linear dimension”).

The Board was also correct to rely on the testimony of Corephotonics’s expert that a POSITA would recognize that Golan’s “light weight” electronic zoom invention “contemplates the use of miniature camera

modules.” Appx3243–3244, ¶ 54. This testimony is not “conclusory” or “without any citation” as Apple contends. Blue Br. 57. Rather, the sentence that Apple quotes from begins “[a]s a result,” and it states a conclusion that is based on at least the four preceding paragraphs of Dr. Moore’s testimony, filled with citations to evidence, including the testimony of Apple’s expert stating that the 5 megapixel sensor in Golan would have a diagonal of 6.0 mm. Appx3242–3244, ¶¶ 51–54.

Apple contends that the Board erred by looking to the sole example in Golan that suggests to a POSITA a particular size or weight and to the testimony of Corephotonics’ expert, and that it should instead have interpreted “light weight” relative to the 10-pound Fujinon A36 x 14.5 lens that Apple cited in its IPR reply. Appx3024–3025. By Apple’s reasoning, all that Apple needed to do was show one example of an optical zoom lens in the world with a particular weight and any modification to Golan that is lighter than that example is “light weight.” But the Fujinon lens is an exceptional lens, costing \$11k used on eBay. Appx3026. According to its manufacturer, the lens offers “the highest magnification and focal length available in the [Electronic News Gathering] market.” Appx3024. Its maximum focal length of 1040 mm—and thus the magnification factor it

offers—is more than 5 times longer than the 200 mm focal length of Kawamura. Appx3024. Apple made no showing that this 10-pound lens was typical of optical zoom lenses at the time relevant to obviousness. Rather, Apple’s expert called it simply “[a]n example” of a heavy and expensive optical zoom lens. Appx2190, ¶ 2190. The Board was not obligated to accept that this single cherry-picked example of an optical zoom lens, extrinsic to the Golan patent, *defined* what the term “light weight” (or the terms “heavy” and “expensive”) meant in Golan or what it would have taught to a POSITA.

Nor is Apple correct to argue that these terms could only be defined relative to the weight or cost of optical zoom lenses. Blue Br. 59. For “light weight” in particular, there is no reason to assume that “light weight electronic zoom” must be defined as *any* electronic zoom that is lighter than “heavy and expensive” optical zoom lenses. Rather, “light weight electronic zoom” is a description of the Golan invention, and it is natural to look to the teachings within Golan—such as the 5 megapixel teaching—to understand what the Golan invention is.

The Board's interpretation of the teachings of Golan concerning "heavy," "expensive," and "light weight" are supported by substantial evidence—indeed by the most reliable available evidence. The Board's decisions based upon these interpretations should be affirmed.

III. The Board fully addressed Apple's grounds supporting the combination of Golan and Kawamura which in any event failed to satisfy Apple's burden to show a motivation to combine

As to the first motivation to combine the Board allegedly failed to properly consider, Apple argues "POSITA would have been motivated to apply Kawamura's teachings of a telephoto lens including five lens elements in the digital camera of Golan to produce the obvious, beneficial and predictable results of a digital camera including a tele lens with a compactness of an overall length while having an excellent image-formation performance as taught by Kawamura." Blue Br. 63–64. But this argument amounts to little more than reciting the benefits Kawamura asserts for its own invention. Appx1299 ("An object of the present invention is to provide a lens that keeps a compactness of an overall length . . . but has an excellent image-formation performance") Establishing motivation to combine must require more than a simple recitation of the benefits of the prior art references separately, as virtually every prior art

disclosure will offer *some* benefits, at least in the context of the specific problem it seeks to solve. There was no meaningful showing by Apple that the purported image-formation benefits were actually relevant to the combined system or would have motivated the combination.

Furthermore, the Board *did* actually address this first motivation to combine and explain why it was lacking. In its analysis of Apple’s second alternative theory involving scaling of Kawamura, the Board stated that it was “not persuaded that a ‘POSITA would have scaled the Kawamura lens prescriptions to fit into a digital camera of Golan while *maintaining the compactness* and an excellent image-formation performance.” Appx36. It then proceeded to discuss the evidence that supported its conclusion, including testimony from Corephotonics’ expert and the three documents written or cited by Dr. Sasián, or written by his Ph.D. student, that the Board found impeached Dr. Sasián’s opinion, as previously discussed. Appx36–37. Among the reasons that the paper written by Dr. Sasián gave—and that the Board’s decision quoted—that traditional lenses “can not be simply scaled down” was “geometrical aberrations,”

suggesting that scaling down the Kawamura lens would reintroduce exactly the image performance problems that the Kawamura patent claimed to reduce. Appx36–37, Appx3507, Appx1299.

As to the second motivation to combine the Board allegedly failed to properly consider, Apple claims that it explained Golan and Kawamura “share the same goal of addressing deficiencies in optical lenses.” Blue Br. 62. But the pages from the petition and expert declaration Apple cite say nothing about the references having the “same goal” and say nothing to suggest Golan is concerned with “addressing deficiencies in optical lenses.” Appx187, Appx1133. As for the argument that Golan and Kawamura “share a need to provide a compact and light weight imaging system while providing excellent image quality,” Apple fails to show that Kawamura viewed achieving “light weight” as a goal. Rather, Kawamura itself says nothing about weight, but describes its invention as keeping length to a “conventional level” (for 1981). Appx1299. As to motivation to combine based on allegedly overlapping goals between the prior art and the challenged patent, Blue Br. 62–63, Apple does not cite to anywhere that it made that argument to the Board.

As for the sole one of these arguments that Apple actually presented to the Board (shared need for compact and light weight imaging system), the Board expressly considered and rejected it. Appx37, Appx39. In particular, the Board found that the Kawamura lens was not “light weight” in the sense of Golan and its articulated goals. Appx39.

As to the third motivation to combine the Board allegedly failed to properly consider, Apple cites “additional benefits” from Kawamura’s lens, including “a relatively large field of view and little vignetting.” Blue Br. 63.² But the support for these alleged benefits in Apple’s petition amounted to a single conclusory sentence in its expert’s declaration. Appx188, Appx1134. Neither Apple nor its expert explains how it knows Kawamura has a “relatively large field of view,” or by what standard. Nor does Apple explain why using a tele lens with a “relatively large field of view” in Golan’s system would be beneficial, when Golan itself calls for “a tele lens having a narrow FOV.” Appx1198. As for “vignetting,” neither Apple nor its expert even explains what that is, let alone explain why it

² Apple also repeats the “same goal” argument from its second motivation to combine, which is addressed above.

would be significant, either in the Kawamura lens itself or in a combination with Golan. Vignetting is not mentioned Kawamura or Golan, and Apple's expert does not explain how he knows it has "little vignetting" or what standard that is judged by. Given the conclusory nature of the arguments concerning these "additional benefits" and the failure to actually tie them to the combined system, the Board properly addressed them as part of the category of Apple's reasons for combining that were "insufficient to support a conclusion of obviousness" and not "supported by sufficient rational underpinning. Appx37, Appx39. *Princeton Vanguard, LLC v. Frito-Lay North America, Inc.*, 786 F.3d 960, 970 (Fed. Cir. 2015) ("the Board is not required to discuss every piece of evidence").

As to the fourth and final motivation to combine the Board allegedly properly failed to consider, concerning purportedly "operable results that are predictable," Apple raised this same complaint in its request for rehearing. Appx677. Accordingly, the Board addressed this issue in both its Final Written Decision and its decision on rehearing. *E.g.*, Appx37–39, Appx48, Appx62–63, Appx66. The Board explained that "Dr. Sasián's testimony is that Kawamura could be scaled, but doesn't explain why a POSITA would think Kawamura was small enough or should be scaled

to be small enough to be compatible with Golan’s invention.” Appx63. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only could have made but would have been motivated to make the combinations or modifications. . .”).

The Board found that the “light weight electronic zoom” taught by Golan would not accommodate an unscaled Kawamura. Appx63 (“Dr. Sasián’s testimony . . . doesn’t explain why a POSITA would think Kawamura was small enough”); Appx25–26; Appx35. The Board also rejected the theory that scaling Kawamura would have been predicable. Appx63 (“Dr. Sasián’s testimony is that Kawamura could be scaled, but doesn’t explain why a POSITA would think Kawamura . . . should be scaled to be small enough to be compatible with Golan’s invention.”); Appx36 (finding that Dr. Sasián’s testimony concerning scaling in support of Apple’s “operable results that are predictable” theory had been impeached).

Apple finally complains that the Board’s analysis of these motivation to combine arguments was too brief, at a little more than two pages. Appx37–39. But Apple only cites three pages of its own petition that present these arguments. Blue Br. 60–67 (citing Appx187, Appx188,

Appx189). As explained above, the Board's analysis of these arguments and the evidence that related to them included many other pages of the Final Written Decision and the decision on rehearing. *E.g.*, Appx25–26, Appx35–36, Appx48, Appx62–63, Appx66. The Board's findings on the motivation to combine adequately address Apple's arguments, are supported by substantial evidence, and should be affirmed.

CONCLUSION

Corephotonics respectfully requests that the Court affirm the Board's conclusion that claims 5 and 6 of the '408 patent are not unpatentable, because the Board's factual determinations concerning the teachings of Golan and Kawamura and concerning the motivation to combine them are supported by substantial evidence.

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CERTIFICATE OF COMPLIANCE

The foregoing filing complies with the relevant type-volume limitation of the Federal Rules of Appellate Procedure and Federal Circuit Rules because the filing has been prepared using a proportionally-spaced typeface and includes 9206 words.

Dated: June 9, 2023

/s/ Neil A. Rubin

Neil A. Rubin